

REMARKS

Upon entry of the present Amendment C, the claims in the application are claims 1, 3-7, 9-10 and 13-15, of which claims 1, 3, 6, 7, 9 and 10 are independent. Claims 1, 6, 7 and 10 are amended to incorporate therein limitations corresponding to those of original claims 2, 8, 11 and 12 (now canceled without prejudice or abandonment of the subject matter therein).

Applicant respectfully submits that all of the above amendments are fully supported by the original application, including the original claims. Applicant also respectfully submits that the above amendments do not introduce any new matter into the application.

Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's indication that claims 3, 4, 5, 9 and 15 contain allowable subject matter and would be allowable if rejections under 35 USC §101 and §112 are overcome.

Response To Objections and Rejections in Office Action

The above-identified Office Action has been reviewed, the applied references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment D is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 USC §101

At item 2 of the Office Action, the Examiner has rejected claims 1-5, 7-9, 13 and 15 under 35 USC 101, taking the position that the claimed invention is directed to non-statutory subject matter. It is the Examiner's position that: claims 1, 2, 7, 8 and 13 appear to be directed to a mathematical algorithm in that the claimed invention (allegedly) does not result in a physical

transformation nor does the claimed invention appear to provide a useful, concrete and tangible result; claims 1, 2, 7, 8 and 13 are otherwise directed to a process that (allegedly) does nothing more than solve a mathematical problem and manipulate abstract ideas; in his view, claims 1, 2, 7, 8 and 13 are directed to a process consisting solely of operations manipulating a set of mathematical entities, wherein the result of the operations is set numbers representing intensity values arranged as a two-dimensional array, and the invention fails to use the result to enable its functionality to be realized; and claims 3-5, 9 and 15 are directed to a generic computing system that solely calculates a mathematical algorithm, which is (allegedly) non-statutory subject matter.

The Examiner references Annex 5 of the “Interim Guidelines for Examination of Patent Application for Patent Subject Matter Eligibility”, which states that if the “acts” of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. Benson, 407 U.S. at 71-72, 175 USPQ at 676. Thus, a process consisting solely of mathematical operations, i.e., converting one set of number into another set of number does not manipulate appropriate subject matter and thus cannot constitute a statutory process.

Applicant’s Response

Applicant has carefully considered the Examiner’s position and the guidelines set forth in MPEP 2106+, and respectfully traverses the above rejection, since the claimed invention expressly pertains to / involves a practical, real-world application, i.e., a simplified method, apparatus and program for compositing a computer-graphics (CG) image (2D) and a (3D) picture taken by a camera whereby the composited image and picture does not shake or otherwise create an unnatural impression. See, for example, the discussion at pages 1-4 of the present specification wherein it is discussed that the conventional methods, programs, and apparatus for compositing a CG image (2D)

and a (3D) picture taken by a camera involve errors derived from the pinhole camera model utilized in rendering a 3D object to be combined with a picture taken by a camera, such that it has conventionally been necessary to apply an extra manual operation of correcting the position of the CG image relative to the picture on which the CG image is superposed. The claimed invention eliminates the conventional need for such extra manual operation when generating composited CG image/picture – a very desirable, concrete, tangible and practical (hence utilitarian) result.

Applicant respectfully submits that the claimed invention does not, as the Examiner is asserting, merely involve solving of mathematical algorithms and/or manipulations of abstract ideas. The claimed invention clearly provide useful, concrete and tangible results in which the 2D CG image and the 3D picture are physically transformed into the generated composite image/picture which may then be usefully displayed for viewing by people, e.g., the driver of an automobile as discussed at the paragraph bridging pages 3-4 of the specification. Each of the independent claims 1, 3, 7 and 9 specifically involves superposing the two-dimensional image on the picture to generate a composite image/picture. The composite image represents a concrete physical/tangible result within the requirements and guidelines of 35 USC 101. See MPEP §2106+. Thus, the claimed invention as expressly defined clearly accomplishes a practical and desirable result.

Based on the foregoing, applicant believes that the Examiner's rejection of claims 1-5, 7-9, 13 and 15 under 35 USC 101 have been over come, and it is respectfully requested that such rejection be reconsidered and withdrawn.

Claim Rejections – 35 USC §112

At item 9 of the Office Action, the Examiner has rejected claims 2, 8, 11 and 12 under 35 USC 112, second paragraph as failing to particularly point out and distinctly claim the subject matter with applicant regards as the invention. It is the Examiner's position that claims 2,

8, 11 and 12 are indefinite as it is not clear how the second data can both provide a definition and supply a correction to “the lines of sight”, that is, the definition of a “line of sight” appears to be self-referential: a line of sight is defined by a correction to lines of sight. The Examiner recommends that the relationship between the second data and the defined lines of sight be clarified.

Applicant's Response

Applicant has carefully considered the Examiner's rejection, and in light of the above amendments to the limitations of claims 2, 8, 11, 12 as now incorporated into the independent claims (all references to “correction” as added in Amendment-C are deleted), it is respectfully submitted that the rejection is overcome and that each of the present claims adequately complies with 35 USC 112, second paragraph.

Based on the foregoing, the Examiner's rejection under 35 USC 112, second paragraph, is believed to be overcome, and it is respectfully requested that the rejection under 35 USC 112 be reconsidered and withdrawn.

Claim Rejections – 35 USC §103

At item 11 of the Office Action, the Examiner rejected claims 1, 6, 7, 10, 13 and 14 under 35 USC §103 (a) as unpatentable over Noyama et al. (US 5,594,850) in view of Kolb et al. (US 6,028,606) and further in view of Welsh et al. (US 4,970,666). In his rejection, the Examiner has maintained his rejection from the Office Action of 05 July 2006 while stating, with respect to independent claims 1 and 7, that Kolb et al. discloses “defining, in accordance with conditions in which the picture is taken, a three dimensional model, a viewpoint, and a plane of projection, in a space established on a computer” (col. 5, lines 36-39); however, the combination of Noyama et al and Kolb et al does not expressly disclose “defining, in accordance with conditions in which the picture is taken, a three dimensional model, a viewpoint, and a plane of

projection, in a space established on a computer, the conditions comprising at least one of the tilt angle of the camera relative to a ground surface and the position of a light source relative to the cameras.” It is the Examiner’s position that Welsh discloses such a limitation (col. 6, lines 1-5, 15-18 and 29-35), and that at the time of the invention, it would have been obvious to a person of ordinary skill in the art to accurately model the extrinsic camera parameters as suggested by Welsh in addition to the intrinsic camera parameters as disclosed by Noyama and Kolb in combination. The Examiner states that the motivation for doing so would have been to improve the quality of the final image, as rendering using the extrinsic parameters disclosed by Welsh would cause the appearance of the synthetic elements in the final image to match the appearance of the acquired elements more accurately than rendering using intrinsic parameters alone. (See items 18, 19, 24 and 25 of the Office Action).

Applicant’s Response

Applicant has carefully considered the Examiner’s rejection and respectfully disagrees with the rejection for substantially those reason stated in Applicant’s Amendment C which are not overcome by any additional teachings of Welsh.

However, in an effort to expedite prosecution of the present application, Applicant has amended independent claims 1, 6, 7, 10 to include limitations of the dependents claims which the Examiner has indicated contain allowable subject matter, e.g., claims 1, 6, 7 and 10 have been amended to incorporate the subject matter of claims 2, 11, 8 and 12 respectively. Based on those arguments presented above with respect to the subject matter of claims, 2, 11, 8 and 12, it is believed that the all rejections of such subject matter have been overcome and that by incorporating such subject matter into said independent claims, the Examiner’s rejection is believed to be overcome and it is respectfully requested that the Examiner’s rejection of claims

1, 6, 7, 10, 13 and 14 under 35 USC 103(a) be reconsidered and withdrawn.

Other Matters

The additional references cited by the Examiner in the Office Action, US Patents 6,268,863 to Rioux; 6,166,744 to Jaszlics et al.; Ned Greene, Paul S. Heckbert, "Creating raster Omnimax Images from Multiple Perspective Views Using the Elliptical Weighted Average Filter"; Nelson Max, "Computer Graphics Distortion for IMAX and OMNIMAX Projection"; Craig Kolb, Don Mitchell, Pat Hanrahan, "A realistic Camera Model for Computer Graphics; and Geregle Vass, Tamas Perlaki, "Applying and Removing Lens Distortion in Post Production", have been considered by applicant, but it is respectfully submitted that these additional references fail to overcome the deficiencies of the Noyama, Kolb and Welsh references as discussed above in relation to claim 1, 6, 7, 10, 13 and 14.

Conclusion

In conclusion, applicant has overcome the Examiner's objections and rejections as presented in the Office Action; and moreover, applicant has considered all of the references of record, and it is respectfully submitted that the invention as defined by each of present claims is patentably distinct thereover.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable reconsideration is respectfully requested.

Respectfully submitted,

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